

## **MADERA COUNTY**

### **ENGINEER I/II/III**

#### **DEFINITION**

Under supervision (Engineer I) or direction (Engineer II/III), to perform a variety of professional engineering duties; and to do related work as required.

#### **SUPERVISION EXERCISED**

##### **Engineer I**

Exercises no supervision.

##### **Engineer II/III**

May exercise technical and functional supervision over lower level staff.

#### **DISTINGUISHING CHARACTERISTICS**

**Engineer I**--This is the entry level in the Engineer class series. Positions at this level usually perform most of the duties required of the positions at the Engineer II/III level, but are not expected to function at the same skill level and usually exercise less independent discretion and judgment in matters related to work procedures and methods. Work is usually supervised while in progress and fits an established structure or pattern. Exceptions or changes in procedures are explained in detail as they arise. Since this class is often used as a training class, employees may have only limited or no directly related work experience.

**Engineer II/III**- These are the full journey level positions in the Engineer class series. Incumbents have responsibility for an assigned area of engineering functions such as refuse disposal or the design and construction of various projects, including roads and bridges. In addition, they may provide some training and lead supervision to other staff. Positions at this level receive only occasional instruction or assistance as new or unusual situations arise, and are fully aware of the operating procedures and policies of the work unit. Positions in this class series are flexibly staffed and positions at the Engineer II level are normally filled by advancement from the Engineer I level. When filled from the outside, the employee is required to have prior related experience which allows the employee to meet the qualification standards for the Engineer II level.

#### **EXAMPLES OF IMPORTANT AND ESSENTIAL DUTIES**

Acts as a project engineer; prepares and/or reviews designs, plans, specifications, and cost estimates for a variety of projects; administers and processes contract documents for design, construction, and maintenance of various engineering projects; maintains project records; initiates field changes; prepares pay estimates; prepares as-built plans and recommendations; visits project sites to anticipate

and resolve potential problems; writes correspondence and final reports; authors and presents various technical documents including feasibility studies and reports which require engineering judgments and evaluations; communicates information and provides guidance to the public and other agencies regarding various engineering design elements and codes; performs evaluation of engineered plans, specifications, documents and reports including construction zone signing, traffic engineering requirements, grading and drainage plans/studies, development plans for various entitlements, and engineered building plans; prepares, reviews, and recommends approval of documents necessary for legal property descriptions and right-of-way acquisition or abandonment procedures; may train or direct other employees in work procedures and methods; performs engineering functions related to the maintenance and operation of the public highway system infrastructure, including monitoring of drainage, sidewalk, traffic safety, and other road facilities to identify system deficiencies, prepares technical reports addressing those deficiencies, and implements corrective action.

### **OTHER JOB RELATED DUTIES**

Performs related duties and responsibilities as assigned.

### **JOB RELATED AND ESSENTIAL QUALIFICATIONS**

#### **Engineer I**

##### **Knowledge of:**

General engineering principles and practices based on advanced mathematics and the physical sciences.

Structural analysis, hydraulics, transportation, geotechnical, and/or environmental engineering.

##### **Skill to:**

Operate modern office equipment including computer equipment.

##### **Ability to:**

Learn pertinent federal, state, and local laws, codes, and regulations related to construction activities, drainage, water quality, water and sewer treatment, land surveying, and subdividing.

Learn principles, practices and methods of civil engineering as applied to the plans, design and construction of complex roads, bridges, drainage and other structures.

Learn modern standards of alignment and grade of roads.

Learn design principles, the strength of materials, and the stress analysis required for various projects.

Apply principles of logic and scientific reasoning to develop and evaluate alternative courses of action and recommend appropriate solutions.

Quickly learn and apply various codes, laws, and ordinances.

Inspect construction projects for adherence to contracts and specifications.

**Ability to:**

Prepare clear, concise technical engineering reports.  
Learn to conduct research as it applies to technical engineering.  
Effectively represent the County to the public, community organizations, and other government agencies.  
Effectively communicate clearly and concisely, both orally and in writing, in the exchange of technical information.  
Establish, maintain, and foster positive and harmonious working relationships with those contacted in the course of work.

**Experience and Training Guidelines:**

*Any combination equivalent to experience and training that would provide the required knowledge, skills, and abilities would be qualifying. A typical way to obtain the knowledge, skills, and abilities would be:*

**Experience:**

No experience is required.

**Training:**

Possession of a Bachelor's degree from an accredited college or university in civil, mechanical, structural or a relevant field of engineering.

**License:**

Possession, or ability to obtain by date of appointment, a valid Class 'C' California driver's license.

**Special Requirements:**

*Essential duties require the following physical skills and work environment:*

Ability to work in a standard office environment including the ability to work outdoors and travel to different sites and locations.

**Engineer II/III**

**In addition to the qualifications for an Engineer I:**

**Knowledge of:**

Pertinent Federal, State, and local laws, codes, and regulations related to projects where assigned.

**Knowledge of:**

Principles, practices and methods of civil engineering as applied to the plans, design and construction of complex roads, bridges, drainage and other facilities and structures.

Modern standards of alignment and grade of roads, when applicable.

Right of way acquisition and road abandonment procedures, when applicable.

Federal, State and local regulations involving project approval for Federal and State funds including but not limited to environmental, design and construction.

**Ability to:**

Design engineering plans and prepare specifications for flood control, drainage structures, water quality systems, sewer treatment facilities, roads, bridges, and/or other facilities and structures.

Provide guidance and training for support staff.

Perform detailed and exacting non-licensed engineering work.

Prepare cost estimates for engineering projects.

Review engineering plans and specifications for flood control, drainage structures, water quality systems, sewer treatment facilities, roads, bridges and/or other facilities and structures.

**Experience and Training Guidelines:**

*Any combination equivalent to experience and training that would provide the required knowledge, skills, and abilities would be qualifying. A typical way to obtain the knowledge, skills, and abilities would be:*

**Experience:**

II Level: One (1) year of increasingly responsible engineering experience comparable to that of an Engineer I with Madera County.

III Level: One (1) year of increasingly responsible engineering experience comparable to that of an Engineer II with Madera County.

**Training:**

Possession of a Bachelor's degree from an accredited college or university in civil, mechanical, structural or a relevant field of engineering.

**License:**

Possession, or ability to obtain by date of appointment, a valid Class 'C' California driver's license.

**Special Requirements:**

*Essential duties require the following physical skills and work environment:*

Ability to work in a standard office environment including the ability to work outdoors and travel to different sites and locations.

**Effective Date:** January, 2008